

1 SPA COVER LIFTER APPARATUS AND METHOD

2
3 This application claims the benefit of U.S. Provisional
4 Application No. 60/428,573 filed October 22, 2002.
5

6 BACKGROUND

7
8 This invention relates generally to hot tubs and spas,
9 and more particularly to removal systems adapted for lifting
10 and removing spa covers therefrom.
11

12 Spa cover removal systems and mechanisms are known in
13 the art. Such mechanisms vary widely in complexity, ease of
14 operation and cost of manufacturing. In recent years, the
15 rise in popularity of spas, commonly referred to as hot
16 tubs, has hastened the development of spa covers and removal
17 apparatus therefor. One early design for cover removal is
18 disclosed in U.S. Patent 4,857,374 issued to Perry (Gary L.)
19 in 1989. The Perry design employs gas springs that extend
20 from the sides of a spa to a spa cover that is hinged to the
21 rear of the spa. In this way, the gas springs assist the
22 user to pivot the cover to a vertical position, away from
23 the top of the spa.

24 U.S. Patent No. 4,853,985 issued to Perry (Cliff R.) in
25 1989 shows a cover assembly for use with a spa. The cover
26 assembly includes a cover member mounted for rotational

1 movement to the spa structure by mounting arms. The
2 mounting arms are arranged relative to the cover member so
3 that the cover member travels along a path from a covering
4 position to an open position. Additionally, the '985 device
5 includes tension springs. Because of the arrangement of the
6 mounting arms and their attachment to the spa cover, the
7 design is not easily adaptable for use with spa covers that
8 fold back to expose only a portion of the spa.

9 U.S. Patent No. 4,991,238 issued to Forrest in 1991
10 shows a spa cover lift that includes one or more struts for
11 positioning a movable frame adapted for pivotable attachment
12 to the side of a spa. The lift includes apparatus for
13 receiving a spa cover from the spa and retaining the cover
14 adjacent the movable frame. The struts are operable to
15 displace the movable frame to an extended position to
16 provide a surface onto which a spa user can slide a spa
17 cover. Because the Forrest device requires that the entire
18 spa cover be moved rearward onto the movable frame, a single
19 user could find it difficult to slide a large heavy cover.

20 U.S. Patent No. 5,131,102 issued to Salley in 1992
21 shows a device for use in conjunction with a spa cover
22 mounted for pivotal movement to facilitate the removal of
23 the cover away from the vicinity of the spa when the same is
24 in use. A bridge arm supported by two side arms is
25 pivotally attached to a base. The bridge arm can be pivoted
26 into position adjacent the spa cover. With the spa cover

1 folded over, the bridge arm is pivoted clearly away from the
2 spa. The arrangement of the '102 device is such that it
3 provides support to the spa cover only at the cover's
4 folding point during the removal process. Accordingly, a
5 portion of the cover slides over the spa as a user operates
6 the device to remove the cover.

7 U.S. Patent No. 5,471,685 issued to Cross in 1995 shows
8 a support for a cover of a hot tub spa having a pair of
9 roller support arms, each having a pivotal connection for
10 securing it to the spa. The pivotal connections each
11 comprise an attachment member for mounting on a vertical
12 outer wall of the spa, with a hinge connecting the support
13 arm to its attachment member for pivotal movement between
14 operative and inoperative positions. Like the Forrest
15 device, the entire spa cover must be moved rearward onto the
16 frame.

17 U.S. Patent No. 5,517,703 issued to Ouelette in 1996
18 shows a lifting mechanism for removing and restoring a
19 hinged spa cover from a spa tub. Two tubular brackets are
20 cojoined so that base members on the brackets are aligned
21 parallel, adjacent to one end of the spa, and arms on the
22 brackets extend along opposite sides of the spa. The
23 cojoined base members are pivotally mounted so that the
24 lifting arms are rotatable between a first lowered position
25 and a second raised position. Support beams are connected
26 to the lifting arms over which the hinged sections of the

1 cover are foldable when the arms are in the first position
2 allowing the cover to be lifted clear of the spa when the
3 arms are moved to the second raised position. Like the
4 Salley device, the '703 cover removal apparatus, during the
5 removal process, provides support to the spa cover only at
6 the cover's folding point.

7 U.S. Patent No. 5,584,081 issued to Ouelette in 1996
8 shows a lifting frame for a hinged spa cover having a pair
9 of adjustable lifting arms pivotally mounted adjacent the
10 side walls of a spa. A U-shaped foot actuated lever is
11 connected to the lifting arms with the base of the lever
12 extended across one end wall of the spa. The upper part of
13 the arms are equipped with one or more supports that are
14 adjacent to and parallel with the cover hinge whereby the
15 cover is foldable over the support or supports when the
16 lifting arms are in a first position. The foot lever is
17 elevated when the lifting arms are in the first position,
18 and depressing the lever causes the arms to be rotated to a
19 second position whereby the folded cover is supported in a
20 vertical position adjacent one end wall of the spa. Like
21 the earlier Ouelette invention, the spa cover is supported
22 only at its folding point.

23 U.S. Patent No. 5,634,218 issued to Ouelette in 1997
24 shows a lifting frame for a hinged spa cover having a pair
25 of adjustable lifting arms pivotally mounted on or adjacent
26 to a side wall of a spa. The upper part of the arms are

1 equipped with one or more supports that are adjacent to and
2 parallel with the cover hinge with the cover being foldable
3 over the support or supports when the lifting arms are in a
4 first horizontal position. Rotation of the frame causes the
5 folded cover to be rotated to a second, vertical position
6 adjacent one end wall of the spa. Similar to the other
7 Ouelette devices, this design provides support to the spa
8 cover only at its folding point.

9 U.S. Patent No. 5,644,803 issued to Wilson in 1997
10 shows a spa support assembly that is provided with a
11 plurality of support arms having upper and lower ends with
12 the lower ends pivotally attached to an external surface of
13 the spa side wall for pivotal rotation of the upper ends of
14 the support arms through an arc from a point above and
15 adjacent to the side wall to a point away from the side wall
16 at a point where the upper ends of the support arms are
17 within the generally horizontal plane defined by the top
18 surfaces of the side walls and at a distance away from the
19 side wall. Like the prior '238 and '685 patents, the Wilson
20 device requires that the user slide the spa cover rearward
21 over the spa during the removal process.

22 While most of the above noted designs assist in the
23 removal process of a spa cover from a spa, they typically do
24 not provide a simple, safe, inexpensive and adjustable means
25 to remove and support the spa cover in a compact position
26 which allows unimpeded access to the spa. Accordingly, a

1 need remains for a spa cover removal apparatus that
2 facilitates the easy removal of a spa cover by a single user
3 which is safe, and easy to install and use.

4 5 SUMMARY OF THE INVENTION 6

7 One object of the present invention is reduce the
8 effort required to remove a spa cover from a spa.

9 A second object is to facilitate the removal of a spa
10 cover from a spa by only one person.

11 Another object is to protect expensive spa covers by
12 simplifying the removal process thereof from a spa.

13 Yet another object is to reduce the expense of heating
14 water in spas by promoting the use of spa covers that are
15 easily removed by one person.

16 A further object is to increase the safety of using a
17 cover removal apparatus.

18 Still another object is to fully support a spa cover in
19 a compact manner thereby minimizing the space taken by the
20 stowed cover following the removal process.

21
22 The invention is a spa cover lifter for assisting a
23 person in the repositioning and removal of a spa cover from
24 a spa. Typically, spa covers are constructed such that they
25 include opposing left and right cover side surfaces.
26 Additionally, spas are typically arranged to include a

1 cabinet having a back spa side disposed between opposing
2 left and right spa sides. Generally, such spas, and the
3 cabinets thereof, are supported from a substantially flat
4 supporting surface or floor.

5 In the present invention, the spa cover lifter
6 comprises opposing left and right side arm supports spaced
7 apart to receive opposing left and right cover side surfaces
8 between the same. Each side arm support has an upper end
9 adapted to rotatably support a portion of the spa cover,
10 i.e., a portion of the respective cover side surface, and an
11 opposing lower end. Importantly, each side arm support is
12 rotatably mounted to a spa side. Specifically, the left
13 side arm support is rotatably mounted to the left spa side,
14 and the right side arm support is rotatably mounted to the
15 right spa side. As will be discussed more fully in the
16 following specification, the point of rotation of each side
17 arm support, along the same, is disposed between the upper
18 and lower ends thereof.

19 Extending from the right side arm support, around the
20 back spa side, to the opposing left side arm support is a
21 lower linking member having opposing ends spaced apart to
22 pivotally attach to the respective spaced apart left and
23 right side arm support. In this way, the linking member can
24 pivot relative to the side arms, about a substantially
25 horizontal axis to define a linking member pivot angle which
26 is the angle between each side arm support and the linking

1 member. In the preferred embodiment, the pivotal attachment
2 point of the lower linking member to the respective side arm
3 support is adjacent the respective lower end thereof.

4 In order to maintain the relative position or angle
5 between each side arm support and the linking member, an
6 adjustable bracing means extends between each side arm
7 support and the linking member. In this way, the relative
8 position between each side arm support and the linking
9 member is adjustable. As will be seen in the following, the
10 relative angle between the linking member and each side arm
11 support is adjustable or selectable.

12 With this construction, the spa cover lifter is
13 shiftable from a first position where the spa cover is in a
14 horizontal covering position over the spa, to a second
15 position where the spa cover is in a stowed position
16 adjacent the back side of the spa as each side arm support
17 rotates relative to the spa.

18 In another aspect of the invention, the degree of
19 rotation of each side arm support is restricted by the
20 action of the linking member engaging the substantially flat
21 supporting surface or floor.

22 In another aspect of the invention, each adjustable
23 bracing means is adjustable to selectively engage the
24 respective side arm support at one of a plurality of points
25 between the upper end and the lower end thereof.

1 The foregoing and other objects, features, and
2 advantages of this invention will become more readily
3 apparent from the following detailed description of a
4 preferred embodiment which proceeds with reference to the
5 accompanying drawings, wherein the preferred embodiment of
6 the invention is shown and described, simply by way of
7 illustration of the best mode contemplated of carrying out
8 the invention. As will be realized, the invention is
9 capable of other and different embodiments, and its several
10 details are capable of modifications in various obvious
11 respects, all without departing from the invention.

12
13
14 BRIEF DESCRIPTION OF THE DRAWINGS

15
16 FIG. 1 is a rear perspective view of a spa cover
17 lifter installed on a spa having a spa cover, wherein the
18 spa cover lifter is in the first position where the spa
19 cover is in the horizontal covering position over the spa.

20
21 FIG. 2 is a perspective view of a spa cover lifter
22 installed on a spa having a spa cover, wherein the spa cover
23 lifer is shifted to a second supporting position to support
24 the folded spa cover in a rearwardly disposed position.

1 FIG. 3 is an exploded view of the right side of a spa
2 cover lifter, wherein the left side (not illustrated) is
3 constructed as a mirror image thereof.

4
5 FIG. 4 is an enlarged fragmentary right side elevation
6 view illustrating the connection between an adjustable
7 bracing means and a linking member, the bracing means being
8 provided to extend between a right side arm support and the
9 linking member to maintain the relative position and angle
10 between the linking member and the right side arm support.

11
12 FIG. 5 is an enlarged fragmentary right side
13 elevation view illustrating an end of a linking member
14 pivotally attached to a right side arm support wherein the
15 right side arm support is rotatably attached to the right
16 spa side.

17
18 FIG. 6 is an enlarged fragmentary right side
19 elevation view illustrating the connection between an
20 adjustable bracing means and a right side arm support
21 wherein the adjustable bracing means is a brace member
22 provided to extend between a right side arm support and the
23 linking member to maintain the relative position and angle
24 between the linking member and the right side arm support.

1 FIG. 7 is a perspective view illustrating the
2 components of an adjustable bracing member.

3
4 FIG. 8 is a perspective view of a side arm support
5 with portions thereof exploded to further illustrate certain
6 components.

7
8
9 DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

10
11 FIGS. 1 through 8 show a preferred embodiment of a spa
12 cover lifter 20. The spa cover lifter 20 is provided to
13 assist a person in the repositioning and removal of a spa
14 cover 22 from a spa 24. Typically, a spa cover 22 is
15 constructed to include opposing left and right cover side
16 surfaces 26 and 28. Additionally, spas are typically
17 arranged to include a cabinet 30 having a back spa side 32
18 disposed between opposing left and right spa sides 33 and
19 35. Generally, such spas, and the cabinets thereof, are
20 supported from a substantially flat supporting surface 34 or
21 floor.

22 In the present invention, the spa cover lifter 20 is
23 symmetrically constructed with the left side being a mirror
24 image of the right side. Accordingly, only the components
25 of the right side are discussed in detail and illustrated in
26 the drawings. The spa cover lifter 20 comprises opposing

1 left and right side arm supports 36-38 spaced apart to
2 receive opposing left and right cover side surfaces 26-28
3 between the same. Each side arm support has an upper end 40
4 adapted to rotatably support a portion of the spa cover
5 i.e., a respective portion of a cover side surface, and an
6 opposing lower end 42. Importantly, each side arm support
7 36-38 is rotatably mounted to a spa side, i.e., the left
8 side arm support 36 is rotatably mounted to the left spa
9 side 33, and the right side arm support 38 is rotatably
10 mounted to the right spa side 35. As will be discussed more
11 fully in the following specification, the point of rotation
12 of each side arm support is disposed between the upper end
13 and the lower ends thereof.

14 Extending from the right side arm support 38 to the
15 opposing left side arm support 36 is a lower linking member
16 44 having opposing ends 46-48 spaced apart to pivotally
17 attach to the respective spaced apart left and right side
18 arm supports 36-38. In the preferred embodiment, the
19 pivotal attachment point of the lower linking member 44 to
20 the respective side arm support is adjacent the respective
21 lower end 42 thereof.

22 In order to maintain the relative position between each
23 side arm support 36-38 and the linking member 44, an
24 adjustable bracing means 52 extends between each side arm
25 support 36-38 and the linking member 44. In this way, the
26 relative position or angle between each side arm support 36-

1 38 and the linking member 44 is adjustable. As will be seen
2 in the following, the relative angle between the linking
3 member 44 and each side arm support 36-38 is adjustable or
4 selectable.

5 With this construction, the spa cover lifter 20 is
6 shiftable from a first position where the spa cover 22 is in
7 a horizontal covering position over the spa 24 (FIG. 1), to
8 a second position where the spa cover 22 is in a stowed
9 position adjacent the back spa side 32 of the spa 24 as each
10 side arm support 36-38 rotates relative to the spa 24 (FIG.
11 2).

12 Considering now in more detail the structure of the
13 components from which a spa cover lifter 20 is constructed,
14 a right side arm support 38 and the components thereof are
15 best illustrated in FIGS. 3 and 8. In order to simplify
16 construction and assembly, square tubing having a one-inch
17 outside dimension is employed for most tubing in the present
18 invention. Included in the right side arm support 38 is a
19 tubular side arm 54 having two alike spaced jaw slides 56.
20 Each jaw slide 56 is similarly constructed to encircle the
21 tubular side arm 54 and conform closely to its tubular
22 surface. Further, each jaw slide 56 is constructed to
23 define two opposing receiving lugs 60, each with a bore 61
24 therethrough. The two opposing receiving lugs 60 are
25 spaced to receive the pivot lug 64 of a connecting member.
26

1 Typically, connections in the present invention
2 commonly employ an eye-end 62 having a pivot lug 64 which
3 defines a bore 66 extending through the same. In this way,
4 a typical connection is made by a pivot lug 64 received
5 between receiving lugs 60 and joined by a jaw slide screw 68
6 screwed into the aligned bores 61 and 66. As will be
7 discussed more fully below, the right side arm support 38
8 includes one jaw slide 56 for the connection of a brace
9 member 92, and another alike jaw slide 56 for the connection
10 of an end 46 of lower linking member 44.

11 Attachment of the right side arm support 38, and the
12 side arm 54 thereof to the spa cabinet 30 is achieved by
13 first securing a side hinge 70 to a pre-existing aluminum
14 channel 72 disposed under the right cover side surface 28.
15 The side hinge 70 includes 4 holes 74 through which 4 screws
16 76 are placed and tightened into 4 matching pre-existing
17 holes 78 disposed in the aluminum channel 72. Importantly,
18 the side hinge 70 is constructed to include a centrally
19 disposed pivot bore 80 located in a central portion of the
20 side hinge 70 which projects outward to "stand-off" from the
21 right cover side surface 28. In this way, the bore 66 of
22 eye end 62, can be aligned with pivot bore 80 so that a
23 pivot screw 82 can pivotally join the eye end 62 to the spa
24 cover 22 via the side hinge 70. Accordingly, side arm 54
25 pivots relative to the spa cover 22 through the pivot
26

1 connection of its eye end 62 which is disposed at the upper
2 end 40 of right side arm support 38.

3 Direction attention to FIG. 8, it should be noted that
4 the eye end 62 includes a body portion 84 which is shaped to
5 securely fit within the tubular side arm 54. In order to
6 permanently fix the eye end 62 within side arm 54, crimping
7 forces 86 are applied to the portion of the side arm 54
8 receiving the eye end 62. Importantly, all eye ends 62
9 employed in the present invention are similarly secured
10 within a tubular member. Additionally, at the opposing end
11 of side arm 54, i.e., the lower end 42 of the right side arm
12 support 38, is an end cap 88 which is provided to enclose
13 the end of tubular side arm 54.

14 Returning to FIG 3, the pivotal connection of the side
15 arm support 38 to the right spa side 35 of spa cabinet 30 is
16 achieved by the pivotal connection of side arm 54 to pivot
17 plate 94 which is secured to the spa by 4 screws 96. As a
18 spacer, a pivot wheel 90 is disposed between the pivot plate
19 94 and the side arm 54. In this way, a bolt 98 can be
20 inserted through two bushings 100 and 101 provided in the
21 side arm 54 (also see FIG. 8). Further, the bolt 98 extends
22 through pivot wheel 90 and is fastened to a threaded insert
23 102 fixed through the central portion of pivot plate 94.
24 Accordingly, the side arm support 38 is pivotally supported
25 from the spa cabinet 30.

1 As noted above, a jaw slide 56 is disposed at the lower
2 end 42 of the right side arm support 38 as illustrated in
3 FIG. 3, and is provided to pivotally connect the right end
4 46 of the lower linking member 44 to the right side arm
5 support 38. Similarly, the left end 48 of the lower
6 linking member 44 is pivotally connected to the "mirror
7 image" left side arm support 36 (not illustrated).

8 The lower linking member 44 includes a right corner
9 tube 104 which includes a 90 degree bend that defines a side
10 portion 106 and a linking portion 108. The side portion 106
11 is disposed to extend substantially parallel to the right
12 spa side 35 with the end 46 thereof having an eye end 62
13 attached and crimped within the tubular side portion 106 as
14 noted above. The linking portion 108 extends substantially
15 parallel to the back spa side 32 and is connected to a
16 similarly constructed "mirror-image" left corner tube 110 by
17 a centrally disposed connecting tube 112 which has a
18 slightly larger cross section. The connecting tube 112 is
19 sized to securely fit over both the left and right corner
20 tubes 110 and 104, and overlaps each so that a fastener 114
21 can secure the members together.

22 Turning again to FIGS. 1 through 3, and as noted above,
23 an adjustable bracing means 52 is provided to adjustably
24 brace at least one side arm support 38 from the lower
25 linking member 44. For example, in the present invention,
26 a brace member 92, fitted with two eye ends 62 (one at each

1 end), to extend from a jaw slide 56 disposed on the side
2 portion 106 of the right corner tube 104. The brace member
3 92 extends to the side arm 54 of the right side arm support
4 38. Similarly, a jaw slide 56 is disposed on the side arm
5 54, as illustrated, to complete the pivotal connection with
6 the eye end 62 of the brace member 92. Further, a plurality
7 of predetermined bores 116 (see FIGS. 6 and 7) are provided
8 through one surface of the side arm 54 so that the jaw slide
9 56 can be fixed at multiple locations along the side arm 54
10 by a fastener 118. In this way, the angle designated by
11 numeral 120 between the side portion 106, of the lower
12 linking member 44, and the side arm 54 can be selected and
13 adjusted according to the size and configuration of the spa
14 24.

15 Accordingly, when the spa cover 22 is folded as noted
16 in FIG. 2 by arrow 122, the spa cover 22, and the spa cover
17 lifter 20 shifts from a first position, where the spa cover
18 22 is in a horizontal covering position over the spa 24, as
19 illustrated in FIG. 1, to a second position, as illustrated
20 in FIG. 2, where the spa cover 22 is in a stowed position
21 adjacent the back side of the spa 24 as each left and right
22 side arm support 36 and 38 rotates relative to the spa 22.

23 Notably, as seen in FIG. 2, the lower linking member
24 44, and rubber bumpers 126 disposed thereon, attached by
25 screw 128, contact the floor, i.e., the supporting surface
26 34. As can be seen, the ability to adjust the position of

1 the brace member 92, in relation to the side arm 54,
2 controls the position of the spa cover 22 over the spa cover
3 lifter 20 when the same in the second position. In this
4 way, the spa cover 22 can be properly balanced over the spa
5 cover lifter 20. Additionally, it should be understood that
6 the preferred embodiment includes a similarly constructed
7 "mirror image" adjustable bracing means (not illustrated)
8 between the left side arm support 36 and the lower linking
9 member 44.

10 Having illustrated and described the principles of my
11 invention in a preferred embodiment thereof, it should be
12 readily apparent to those skilled in the art that the
13 invention can be modified in arrangement and detail without
14 departing from such principles. I claim all modifications
15 coming within the spirit and scope of the accompanying
16 claims.